PARTICULARLY ATCO

GANG MOWERS
FOR THE FAIRWAYS

There are two models of the new ATCO Gang Mowers available. No. '1' is a general purpose mower and No. '2' designed for extremely heavy duty.

The unique ganging arrangement allows for multiples of one unit upwards making subsequent conversions very economic.

A particularly outstanding feature applied to both models is the totally enclosed all-gear drive. All the gears run in an oil bath which makes for extremely low maintenance in respect of time and cost.

ATCO Gang Mowers are only some of the many machines in the ATCO complete range from the 12" Roller type to the 34" Roller type with a full range of Rotaries, Sidewheels and the Atcoscythe.

and perhaps most important of all IMPECCABLE SERVICE

EVERYWHERE there is an ATCO Engineer attached to an ATCO owned Branch ready to advise on any problem in connection with grass cutting.

* DEMONSTRATIONS OF ANY ATCO CAN BE ARRANGED TO SUIT YOU OR YOUR GREENS COMMITTEE

The Triple Gang illustrated costs £270

The 20' Special for 'superfine' mowing of greens

This 'self-contained' motor mower has become recognised as the best machine of all for the maintenance of the perfect finish required for the Greens. The specification is complete and will maintain peak performance—for life.

£90

CHARLES H. PUGH LIMITED
P.O. BOX 256, ATCO WORKS, BIRMINGHAM 9
THE BRITISH GOLF

GREENKEEPER

HON. EDITOR: F. W. HAWTREE.

No. 215 New Series
FEBRUARY 1963

The best sermon is preached by the Minister who has a sermon to preach and not by the man who has to preach a sermon.

WILLIAM FEATHER.

FEBRUARY CONTENTS

Page 3 TEE SHOTS.

4 REFUSE AND SLUDGE INTO COMPOST.

8 BEATING THE WEATHER.

10 SEAWEED FOR SOIL AND TURF.

13-16 SECTION NEWS.

16 HON. SECRETARY’S NOTES.

EDITORIAL AND ADVERTISEMENT OFFICES: Addington Court Golf Club, Featherbed Lane, Addington, Croydon, Surrey. Telephone: SANDerstead 2690. SUBSCRIPTION RATE: 14/- for 12 issues post paid. Published during the first week of each month. LATEST COPY DATE: 8th of month prior to insertion. All rights reserved. Reproduction of original articles and photographs in whole or in part is prohibited. This Magazine shall not, without the written consent of the Publishers first given, be re-sold, lent, hired out, or otherwise disposed of. Contributions and photographs of interest are invited.

TO INSERT A CLASSIFIED ADVERTISEMENT, write to the Advertisement Manager at the above address. The rate is 6d. per word (minimum 15 words). Box Number, 1/6d. extra. Remittance must be sent with order. Please state number of insertions required and write advertisement in block letters. Advertisements will be inserted in the first available issue.
"Better than anything on the market at the present time"...

Lancashire Golf Club recommends HI-GROW and SEAGROW to all Golf Clubs.

First-hand testimony to the results achieved with HI-GROW and SEAGROW. The secretary writes:

"We consider that Hi-Grow and Seagrow fertilisers are better than anything on the market at the present time. We would have no hesitation at all in recommending Hi-Grow for use on the fairways throughout the growing season. Seagrow has been used on newly made and old established greens and this has produced marvellous results. Our greens have received praise from everyone because of the marvellous results, and the beautiful colour which has been maintained throughout the winter. We have no hesitation in recommending your fertilisers to all golf clubs”.

**HI-GROW**

The top-quality fertiliser with the exceptionally high N.P.K. content—9% N, 9% P, 15% K.

**SEAGROW**

A seaweed based fertiliser which has achieved spectacular success.

Write for full technical details and highly competitive prices to

**PEAKS OF WIGAN**

Peaks—Newtown—Wigan—Telephone 44278
A SIX thousand mile search for visible grass last month brought up some odd results. No snow round Lough Neagh and hardy golfers enjoying the Massereene Golf Course, Antrim, just about to extend itself to eighteen holes from nine. Deep snow at Lyons —27°C. on the club-house terrace but work well on with their new 18-hole course. No snow on two new Paris courses under construction—the one where tree felling provided frequent blazes along future fairways distinctly the favourite. An inch or so at Wigan where Ashton-in-Makerfield Golf Club is getting ready to move itself to a new home. No: a flake in Majorca though rain has been holding up work on the new Son Vida course. More fell last November than normally in the whole year. A sprinkling at Lavandou in the South of France—but the sun already strong enough to shift it and the new 18 holes all roughly shaped. But up to the knees at Orpington where a new public course is planned not far from the West Kent Golf Club at Downe.

* * *

The Apprenticeship Scheme has had the blessing of the English Golf Union and the Welsh Golfing Union. Next stage is to set up the Central Council. To show how fast they move in Wales, just a fortnight elapsed between requesting consideration and a reply saying it had been approved and more copies were wanted to send out to clubs.

* * *

Thanks to C. R. Cooke, of St. George's Hill, for telling us about the celebration that never was. A paragraph in the Daily Express mentioned the 50th Anniversary celebrations of the B.G.G.A. and a lot of greenkeepers may have wondered why they did not have an invitation. To reassure them, neither did the President, Chairman, Hon. Secretary nor anyone else. Out of curiosity, it would be interesting to know the occasion which led to the rumour.
FOR two years the Leatherhead Urban District Council have been operating a Refuse and Sewage Sludge Utilisation Plant for the dual purpose of a sanitary method of disposal for refuse and sludge and secondly, to produce a much-needed humus in a form that can be readily applied to the soil without inconvenience or nuisance. This plant was first installed in late 1960 and will handle the refuse from the whole of the Urban District and an estimated future population of 45,000 persons with an input of 9,000 tons of crude refuse per annum. This figure can be exceeded, depending on the hours of operation.

At present the U.D.C. area has a population of 36,000. The plant cost £73,000 to construct and operates with nine or ten people. Obviously, the principal return for this outlay is the sanitary disposal of refuse and sludge.

The plant was designed to have a capacity of 25 tons of refuse in an eight-hour day. It consists of a refuse reception building, separation, salvage and bailing building which is linked to a final separation building by a Dano bio-stabiliser. The buildings are of steel framework in-filled with brickwork. Incoming vehicles pass over a weigh-bridge and on directly to a reception hopper. This has a storage capacity of 55 cu. yds. and is constructed below ground level.

From the bottom of the hopper the refuse is transferred on a conveyor to first floor level and through screening and salvage buildings. At one end of this conveyor is a picking station for the removal of bottles. The refuse is then fed into a large horizontal rotary screen which is fitted internally with a helix to propel the refuse over perforated mesh plates. The first portion of the screen has suitable perforations for the separation of dust and in the second portion large mesh plates extract cinders. Blanking plates are provided so that the quantity of the material screened out can be adjusted according to requirements. The
GROUNDSMEN'S EXHIBITION HURLINGHAM
October 3rd and 4th 1962

At the 1962 Exhibition at Hurlingham organised by the National Association of Groundsmen, Carters comprehensive Exhibit, as illustrated, was again awarded the Highest Honours by the Association for display and lay-out.

For the Production of Fine Turf
Carters Tested Grass Seeds, Special Grass Dressings, Fertilisers, Weedkillers and Wormkillers are used by many of the Leading Golf Clubs and Sports Clubs throughout the country.

We invite you to consult our Sports and Advisory Department on any problem connected with the maintenance of Golf Courses, Lawn Tennis Courts, Cricket Squares, Bowling Greens, Sports Grounds and Recreation Grounds.

The 1963 Edition of our illustrated booklet:—
"Treatment of Golf Courses and Sports Grounds"
free on request
separated cinders gravitate into a large steel storage hopper of over 6 cu. yd. capacity, from which they are loaded through quick-opening discharge doors direct into trucks standing below.

From the screen the fine dust and tailings are carried forward on a rubber belt conveyor which is designed to display the refuse for sorting and picking and which conveys refuse to the stabiliser inlet. Recoverable materials, such as rags, glass and non-ferrous metals are deposited in chutes leading into bins on the ground floor to await further sorting before sale. Tins are baled by a mechanical process. Waste paper is collected and baled separately. The ferrous materials are removed from the conveyor by a magnetic separator and deposited in bins on the ground floor.

The “Dano” stabiliser and screening building.

The refuse tailings from the conveyor belt are discharged with fine dust into the Dano bio-stabiliser. This comprises a rotating drum approximately 10 ft. in diameter and 72 ft. long, with a special stationary inlet. As the tailings enter the stabiliser they are mixed with sewage sludge injected by a pump; the drum is thus kept substantially filled with tailings and sludge and as it slowly rotates the mixed materials move in a screw path towards the outer end. During this process—which takes about five days—the materials are turned into compost by heat fermentation and the self-grinding and abrasive action obtained by the mass of materials in rotation. During this stage air is introduced by an air pump through several air valves on the longitudinal access of the stabiliser.

A twin motor drive to the stabiliser allows it to be rotated at a suitable speed during the day when material is being fed and discharged and a lower speed at night.

The material, by the bio-chemical action and temperature rise, is reduced to an innocuous friable material and is conveyed to the final separation building.

The compost is separated from the inert matter by passing through \( \frac{1}{8} \) in. and \( \frac{3}{8} \) in. screens. An “egaliser” built in between the screen outlet and the compost conveyor from the fine screen rejects inert matter such as glass, nails, etc.

Some 3,000 to 4,000 tons of compost are produced annually. The compost is primarily humus and although rich in nitrogen and containing valuable trace elements it is not claimed to be a general fertiliser.

The Council do not possess the required sales organisation to market the compost and offers were invited on a contract basis from firms, organisations, (Concluded on page 12)
turf to be proud of

Sutton's know about turf. And they operate a special advisory service for groundsmen and those responsible for the condition of grass. But most important, Sutton's provide the right grass seed for any need, and know which seed is right for your soil, your conditions. Buy your grass seeds, fertilizer, weedkiller and dressings from Sutton's

don't fail to grow

Sutton's

grass seeds

Post coupon now for FREE catalogue: To Sutton & Sons Ltd. Reading.

name

address

Please send me your free catalogue of grass seeds and turf specialities, also details of your Grass Advisory Service

BGG-5
BEATING THE WEATHER

A Special Bulletin from the Sports Turf Research Institute, though primarily aimed at sports grounds will be of interest to frost and snow bound greenkeepers

We can consider protection of pitches under various headings:
(a) against frost
(b) against rain
(c) against snow
and against combinations of these three.

(a) PROTECTION AGAINST FROST. The methods explored for protection against frost are:
1. the use of chemicals
2. the use of cover
3. the use of heat

1. Chemicals. In this country chemicals such as common salt have been used to help thaw out frozen pitches, but all chemicals that we have dealt with harm the turf and sometimes the soil as well so that its drainage qualities are severely impaired. This applied particularly to salt. Moreover chemicals often thaw only a shallow depth and thus produce wet mud on a hard base.

2. Cover. As regards cover to protect against frost, canvas sheets and plastic sheets give only moderate protection and are by no means as good as straw. Straw—with its entrapped air—effectively used (before frost gets into the ground) at rates of 1 to 2 cwt. per 50 sq. yds., (i.e. 10 to 20 tons for the pitch), can be counted on to give protection against practically any frost. There is often a weed problem associated with the use of straw but a few weeds would scarcely be considered serious as compared with the state of grounds in recent weeks. The real worries with straw are:
   i. getting suitable straw (good, stiff, clean wheat straw is best),
   ii. handling on and off the pitch (labour is difficult to obtain and machinery may damage the pitch),
   iii. handling, particularly when covered with a thick layer of snow,
   iv. storage (including fire risk).
   (N.B.—Straw applied to a frozen ground keeps the frost in).

3. Heat. Soil warming can be more or less guaranteed to protect against any frost and the most practical warming is electrical soil warming which has been comprehensively investigated and proved. If sufficient electricity is used it would appear that snow can also be dealt with in this way. Experience also tends to show that there may be advantages in thawing snow artificially in that it can be thawed at a controlled rate. We have been convinced for some years that soil warming is both practicable and desirable and have worked out suitable depths (6 ins.) and spacing (6-9 ins.) of wires as well as suitable electric loading.

   The capital cost of a soil warming installation cannot be given except in relation to each individual job because so much of the cost lies in the possible provision of capital equipment to supply the heavy load of electricity required, i.e. of the order of 750 k.watts.

(b) PROTECTION AGAINST RAIN. Good drainage and good management can do much to produce dry grounds but it has seemed to us for some time that League Clubs ought to consider protection against rain with a view to reducing mud formation and the production of poor quality football pitches. We have seriously considered permanent lofty cover to the whole of the ground but naturally this is not easy to arrange practically or economically. More realistically some kind of plastic cover for the actual surface of the pitch has tremendous attraction, but here again cost, convenient handling and labour difficulties enter the picture. Plastic covers can be a nuisance when they have 6 in. of snow on them but the snow can be removed either physically or chemically.

   The Sports Turf Research Institute has also reported on investigations regarding the use of covers raised from the ground on the air-house principle (Journal No. 37 and F.A. News, July, 1961).

(c) PROTECTION AGAINST SNOW. Covers can be useful as above. Snow (Continued on page 12)
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEBRUARY</td>
<td></td>
</tr>
<tr>
<td>12th</td>
<td>North West Section, N.A.G. Lecture, Lancashire County Cricket Club Pavilion, Talbot Road, Stretford.</td>
</tr>
<tr>
<td>13th</td>
<td>Southern Section, Lecture, Talbot Restaurant, Moorgate.</td>
</tr>
<tr>
<td>19th</td>
<td>Northern Section, Lecture, Market Tavern, Godwin Street, Bradford.</td>
</tr>
<tr>
<td>APRIL</td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>Midland Section, Spring Tournament, Sutton Coldfield Golf Club.</td>
</tr>
<tr>
<td>9th</td>
<td>Northern Section, Spring Tournament, Woodsome Hall, Huddersfield Golf Club.</td>
</tr>
<tr>
<td>MAY</td>
<td></td>
</tr>
<tr>
<td>28th</td>
<td>East Midland Section, Spring Tournament, Derby Golf Club.</td>
</tr>
<tr>
<td>JUNE</td>
<td></td>
</tr>
<tr>
<td>11th</td>
<td>Midland Section, President's Match, Handsworth.</td>
</tr>
<tr>
<td>AUGUST</td>
<td></td>
</tr>
<tr>
<td>12th, 13th,</td>
<td>Annual General Meeting and Annual Tournament, Royal Birkdale Golf Club.</td>
</tr>
<tr>
<td>and 14th</td>
<td></td>
</tr>
</tbody>
</table>

**PERFORMANCE PROVES PERFECTION**

You can't tell whether a Lawn Mower will give satisfaction by looking at its shape or colour.

**ITS WHAT'S INSIDE THAT COUNTS!**

The machines made by LLOYDS and Co. incorporate smoothly-working parts built to the same exacting standards and top quality materials which have earned a reputation for trouble-free working in the most arduous conditions.

**EVERYONE INTERESTED IN THE MAINTENANCE OF FINE TURF**

should learn all about the "LEDA" Gang Mowers, the "PALADIN" and "PEGASUS" Putting and Bowling Green Mowers, the "ARIEL" Mower for steep banks etc., etc.

**FREE DEMONSTRATIONS ARRANGED**

Write or telephone for catalogue

With full particulars from:

& CO. (LECHWORTH) LTD.
LECHWORTH HERTS.
Telephone: Letchworth 139 and 697
Seaweed for soil and turf
by W. A. Stephenson*

ALTHOUGH grass has always been a feature of our countryside, it is only since 1930 that any real experimental work has been done, either in this country or in others on sports turf. So much research on close cut grass indicates a world-wide desire for information, yet nobody has arrived at a perfect formula. This can hardly be expected when one considers the varying factors of soil and climate. To a very great extent good grass depends on a good groundsman. Modern aids in the way of machinery, fertilisers, etc., are very important, but are not in themselves, sufficient. The groundsman must maintain a good soil structure if he hopes to produce hard wearing turf.

Headache

The making of a good pitch, cricket table or green requires much thought and work, each particular surface needing a technique specifically for its use and the local conditions. Having produced a good playing turf there follows, as always, the task of maintaining it, and this can provide the biggest headache. A sports pitch, whether for football, hockey, cricket or bowling, gets a severe pounding during the season and the heavy machinery, such as rollers, combine to compact the surface. Compaction is such that all too often we find that an almost impenetrable surface has been formed on the top layer of soil. This surface resists top water, especially heavy rain and indicates that the crumb structure of the surface soil is not right. A well-known turf consultant has said that most important of all is a layer of top soil with a good crumb structure—even if it is only ¼ in. deep.

As early as 1947, J. H. Ouastel and D. M. Webley showed that alginic acid, which forms 25 per cent. of seaweed, was an excellent soil conditioner. It not only improved the crumb structure, but also increased the water holding power of the soils, and that these provided better aeration of waterlogged soils. The alginates in the seaweed act as stabilising colloids, that is, water holding agents. Sodium alginate is more soluble in water and gives the fastest action, calcium alginate has a similar effect but needs longer to break down. When sodium alginate is added to soil that contains the slightest trace of lime, it immediately changes into either calcium or magnesium salts, and forms a dispersed colloidal solution. The alginates gradually disperse through the soil, and if the alginate decomposing micro-organisms are present, are rapidly broken down to simpler units, which are then used by the organisms in the soil.

Alginates can be detected for many months if these organisms are not present, but they will eventually appear, and the breaking-down process will begin. It is for this reason that seaweed fertilisers sometimes have little or no effect soon after their addition to the soil, but after a few months they quite suddenly show a marked effect. Whole seaweed meal not only supplies the mixed salts of alginic acid, but also other organic matter, which stimulates the soil micro-flora with the long term formation of humus.

Bacteria

Scientists seem to agree that soil organisms must have organic materials; "if one feeds the soil micro-organisms, they will feed the plant". Not only does seaweed, both dried and liquid, increase the rate of the nitrogen fixing bacteria, but a research student at Edinburgh also found that out of 217 bacteria found in rotting seaweed, 161 produced nitrogen salts.

Seaweed is also rich in non-toxic trace elements. Trace elements, particularly the metals, have now been found to be essential to the enzyme system of both plants and animals. Moreover, much lime in the soil can be responsible for locking the minerals already present—particularly iron, zinc and manganese.